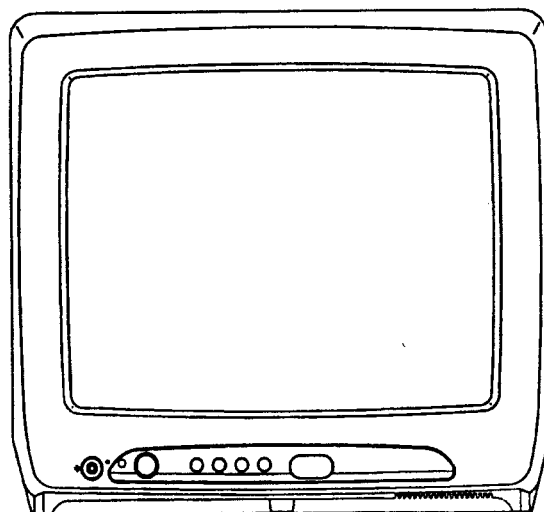


SERVICE MANUAL

ORION

COLOR TELEVISION RECEIVER



ORIGINAL
CHASSIS CODE A

Best. Nr. SM3786

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a \triangle mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the

serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal [Note 2] should be more than 1M ohm by using the 500V insulation resistance meter [Note 1].
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE
You can find it in the back of your unit.
2. PART NO. and DESCRIPTION
You can find it in your SERVICE MANUAL.

IMPORTANT

Inferior silicon grease can damage IC's and transistors.

When replacing an IC's or transistors, use only specified silicon grease (YG6260M).

Remove all old silicon before applying new silicon.

CONTENTS

| | |
|---|------------|
| SERVICING NOTICES ON CHECKING | A1-1 |
| HOW TO ORDER PARTS | A1-1 |
| IMPORTANT | A1-1 |
| CONTENTS | A2-1 |
| GENERAL SPECIFICATIONS | A3-1~A3-4 |
| DISASSEMBLY INSTRUCTIONS | B-1 |
| SERVICE MODE LIST | C-1 |
| CONFIRMATION OF HOURS USED | C-1 |
| WHEN REPLACING EEPROM (MEMORY) IC | C-2 |
| ELECTRICAL ADJUSTMENTS | D1-1~D2-1 |
| MAJOR COMPONENTS LOCATION GUIDE | D3-1 |
| BLOCK DIAGRAM | E-1, E-2 |
| PRINTED CIRCUIT BOARDS | |
| MAIN/CRT | F-1~F-4 |
| SCHEMATIC DIAGRAMS | |
| MICON/T.TEXT/TUNER | G-1, G-2 |
| CHROMA/SIF/VIF | G-3, G-4 |
| POWER | G-5, G-6 |
| DEFLECTION/CRT | G-7, G-8 |
| SOUND AMP | G-9, G-10 |
| WAVEFORMS | H-1, H-2 |
| MECHANICAL EXPLODED VIEW | I-1 |
| MECHANICAL REPLACEMENT PARTS LIST | J1-1 |
| ELECTRICAL REPLACEMENT PARTS LIST | J2-1, J2-2 |

GENERAL SPECIFICATIONS

| | | | | | | | |
|-----|--------------------|------------------------|------------------------|---------------------|--|-----|--------|
| G-1 | TV System | CRT | CRT Size / Visual Size | | 14 inch / 335.4mmV | | |
| | | | CRT Type | | Normal | | |
| | | | Deflection | | 90 degree | | |
| | | | Magnetic Field | BV/BH | +0.45G/0.18G | | |
| | | Color System | | | | PAL | |
| | | Speaker | 1Speaker | | | | |
| | | | Position | | | | Bottom |
| | | | Size | | | | 3 Inch |
| | | | Impedance | | | | 8 ohm |
| | | Sound Output | MAX | | | | 1.0 W |
| | | | 10%(Typical) | | | | 0.8 W |
| | | PAL60Hz | | | | Yes | |
| G-2 | Tuning System | Broadcasting System | | | CCIR System B/G | | |
| | | Tuner and Receive CH | System | 1Tuner | | | |
| | | | Destination | W/ Hyper | | | |
| | | | Tuning System | F-Synth | | | |
| | | | Input Impedance | VHF/UHF 75 ohm | | | |
| | | CH Coverage | | | E2 - E4, X - Z+2, S1 - S10, E5 - E12, S11 - S41, E21 - E69 | | |
| | | Intermediate Frequency | Picture(FP) | 38.90MHz | | | |
| | | Sound(FS) | 33.4MHz | | | | |
| | | | FP-FS | | 5.5MHz | | |
| | | Preset CH | | | 80 | | |
| | | Stereo/Dual TV Sound | | | No | | |
| | | Tuner Sound Muting | | | Yes | | |
| G-3 | Power | Power Source | AC | 230V AC 50Hz | | | |
| | | | DC | - | | | |
| | | Power Consumption | | | at AC | | |
| | | Stand by (at AC) | | | 44 W at AC 230 V 50 Hz | | |
| | | Per Year | | | 10 W at AC 230 V 50 Hz -- kWh/Year | | |
| G-4 | Regulation | Protector | Power Fuse | Yes | | | |
| | | | Safety | CE | | | |
| | | | Radiation | CE | | | |
| G-5 | Temperature | Operation | +5°C ~ +40°C | | | | |
| | | | Storage | -20°C ~ +60°C | | | |
| G-6 | Operating Humidity | | | Less then 80% RH | | | |
| G-7 | On Screen Display | Menu | Menu Type | | Yes | | |
| | | | Character | | Yes | | |
| | | | Picture | Yes | | | |
| | | | | Contrast | | Yes | |
| | | | | Brightness | | Yes | |
| | | | | Color | | Yes | |
| | | | | Tint | | No | |
| | | | | Sharpness | | Yes | |
| | | | Audio | No | | | |
| | | | | Bass | | No | |
| | | | | Treble | | No | |
| | | | | Balance | | No | |
| | | | | BBE On/Off | | No | |
| | | | | Stable Sound On/Off | | No | |
| | | | | CH Tuning | | Yes | |
| | | | | Matual | | Yes | |
| | | | Auto | | Yes | | |
| | | | CH Allocation | | Yes | | |
| | | | Language | | Yes | | |
| | | | Clock Set | | No | | |
| | | | On/Off Timer Set | | No | | |
| | | | Pin Code Registration | | No | | |
| | | | Nicam Auto Off | | No | | |
| | | | Colour System | | No | | |
| | | | Sound System | | No | | |

GENERAL SPECIFICATIONS

| | | | |
|------|-----------------|---|--|
| | | AV2 Output Source | No |
| | | Control Level | Yes |
| | | Volume | Yes |
| | | Brightness | Yes |
| | | Contrast | Yes |
| | | Colour | Yes |
| | | Tint (NTSC Only) | No |
| | | Sharpness | Yes |
| | | Tuning | Yes |
| | | Bass | No |
| | | Treble | No |
| | | Balance | No |
| | | Back Light | No |
| | | Nicam ST | No |
| | | Tone 1/2 | No |
| | | Pin Code | No |
| | | AV | Yes |
| | | Skip | Yes |
| | | Channel | Yes |
| | | Hotel Lock | No |
| | | Sleep Timer | Yes |
| | | Sound Mute | Yes |
| G-8 | OSD Language | | English French Spanish German Italian OSD Language Setting German |
| G-9 | Clock and Timer | Sleep Timer Max Time Step On/Off Timer Program(On Tim / Off Tim) Wake Up Timer Timer Back-up (at Power Off Mode) more than | 120 Min 10 Min No No -- Min Sec |
| G-10 | Remote Control | Unit Glow in Dark Remocon Format Custom Code Power Source Voltage(D.C) UM size x pcs Total Keys Keys Power(Stand By) 1 2 3 4 5 6 7 8 9 0 / AV CH Up CH Down Volume Up / + Volume Down / - Quick View Sleep Info(CH Call) Normal Menu Enter Mute Fine Tuning + Fine Tuning - Tone 1/2 | RC-DG No NEC 80-63 h 3V UM-4 x 2 pcs 31 Keys Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No No Yes Yes No Yes Yes Yes No No No |
| | | TTEXT Keys TEXT / MIX / TV | Yes |

GENERAL SPECIFICATIONS

| | | | | |
|------|-------------|---------------------------|--|--------------|
| | | CH Up / Page Up | | Yes |
| | | CH Down / Page Down | | Yes |
| | | Red | | Yes |
| | | Green | | Yes |
| | | Yellow / Fine Tuning - | | Yes |
| | | Cyan / Fine Tuning + | | Yes |
| | | F/T/B(Expand) / Normal | | Yes |
| | | Reveal / Skip | | Yes |
| | | Display Cancel | | Yes |
| | | Reset | | Yes |
| | | Reset / Tone 1/2 | | No |
| | | Hold / Status | | Yes |
| | | Sub Page / Quick View | | Yes |
| G-11 | Features | Auto Degauss | | Yes |
| | | Auto Shut Off | | Yes |
| | | Canal+ | | No |
| | | CATV | | Yes |
| | | Anti-theft | | No |
| | | Memory(Last CH) | | Yes |
| | | Memory(Last Volume) | | Yes |
| | | BBE | | No |
| | | Auto Search | | Yes |
| | | CH Allocation | | Yes |
| | | Channel Lock | | No |
| | | Just Clock Function | | No |
| | | Game Position | | No |
| | | CH Label | | No |
| | | VM Circuit | | No |
| | | Full OSD | | No |
| | | Unitext | | Yes |
| | | Fastext | | No |
| | | Top Text | | No |
| | | Premiere | | No |
| | | Comb Filter | | No |
| | | | | Lines |
| | | Auto CH Memory | | Yes |
| | | Auto Set Up | | No |
| | | Stable Sound | | No |
| | | FBT Leak Test Protect | | No |
| | | Hotel Lock | | No |
| G-12 | Accessories | Owner's Manual | | German |
| | | Language w/Guarantee Card | | Yes |
| | | Remote Control Unit | | Yes |
| | | Rod Antenna | | No |
| | | Poles | | - |
| | | Terminal | | - |
| | | Loop Antenna | | No |
| | | Terminal | | - |
| | | U/V Mixer | | No |
| | | DC Car Cord (Center+) | | No |
| | | Guarantee Card | | No |
| | | Warning Sheet | | No |
| | | Circuit Diagram | | No |
| | | Antenna Change Plug | | No |
| | | Service Facility List | | No |
| | | Important Safeguard | | No |
| | | Dew/AHC Caution Sheet | | No |
| | | AC Plug Adapter | | No |
| | | Quick Set-up Sheet | | No |
| | | Battery | | Yes |
| | | UM size x pcs | | UM-4 x 2 pcs |
| | | OEM Brand | | No |
| | | AC Cord | | No |

GENERAL SPECIFICATIONS

| | | | | | |
|------|-----------|-----------|------------------|-----------------------------------|------------|
| | | | | AV Cord (2Pin-1Pin) | No |
| | | | | Registration Card | No |
| | | | | PTB Sheet | No |
| | | | | 300 ohm to 75 ohm Antenna Adapter | No |
| G-13 | Interface | Switch | Front | Power | No |
| | | | | System Select | No |
| | | | | Main Power SW | Yes |
| | | | | Sub Power | No |
| | | | | Channel Up | Yes |
| | | | | Channel Down | Yes |
| | | | | Volume Up | Yes |
| | | | | Volume Down | Yes |
| | | Rear | AC/DC | No | |
| | | | TV/CATV Selector | No | |
| | | | Degauss | No | |
| | | | Main Power SW | No | |
| | | Indicator | Power | No | |
| | | | Stand-by | Yes | |
| | | | On Timer | No | |
| | | Terminals | Front | Video Input | No |
| | | | | Audio Input | No |
| | | | | Other Terminal | Ear Phone |
| | | | Rear | Video Input(Rear1) | No |
| | | | | Video Input(Rear2) | No |
| | | | | Audio Input(Rear1) | No |
| | | | | Audio Input(Rear2) | No |
| | | | | Video Output | No |
| | | | | Audio Output | No |
| | | | | Euro Scart(21Pin) | Yes (x1) |
| | | | | Component Input | No |
| | | | | Diversity | No |
| | | | | Ext Speaker | No |
| | | | | DC Jack 12V(Center +) | No |
| | | | | VHF/UHF Antenna Input | Din Type |
| | | | | AC Outlet | No |

| | | | | |
|------|--------------------|-----------------|--------------------------|---|
| G-14 | Set Size | Approx. | W x D x H (mm) | 362 x 360 x 320.5 |
| G-15 | Weight | Net (Approx.) | | 9.5 kg (--- lbs) |
| | | Gross (Approx.) | | 11.5kg (---lbs) |
| G-16 | Carton | Master Carton | | No |
| | | | Content | ---- Sets |
| | | | Material | -- /-- |
| | | | Dimensions W x D x H(mm) | -- x -- x -- |
| | | | Description of Origin | No |
| | | Gift Box | | Yes |
| | | | Material | Double/White |
| | | | Dimensions W x D x H(mm) | 440 x 408 x 380 |
| | | | Design | As per Buyer's |
| | | | Description of Origin | No |
| | | Drop Test | | Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces |
| | | | Height (cm) | 62 |
| | Container Stuffing | 866 | Sets/40' container | |

| | | | |
|------|------------------|---------------|---------|
| G-17 | Cabinet Material | Cabinet Front | PS 94HB |
| | | Cabinet Rear | PS 94HB |

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- ★ After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- ★ Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. (Refer to Fig. 3-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver. A cracking noise will be heard as the voltage is discharged.

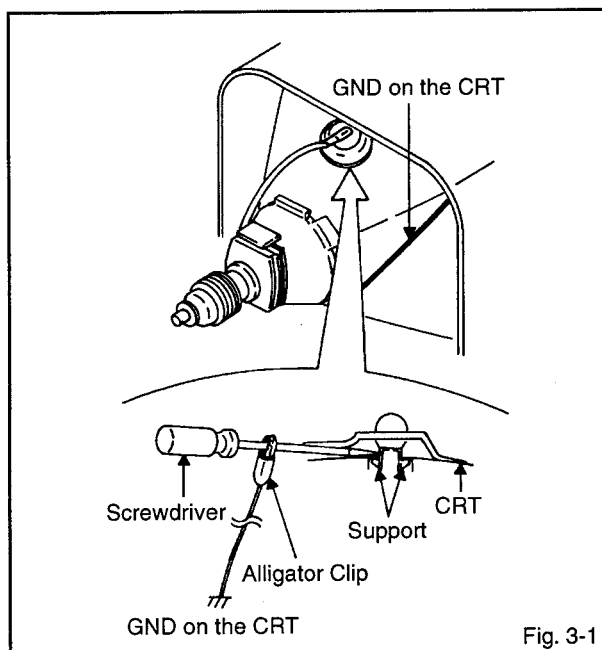


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. (Refer to Fig. 3-2.)

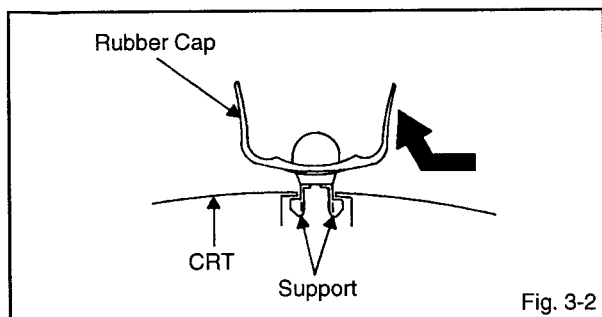


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 3-3.)

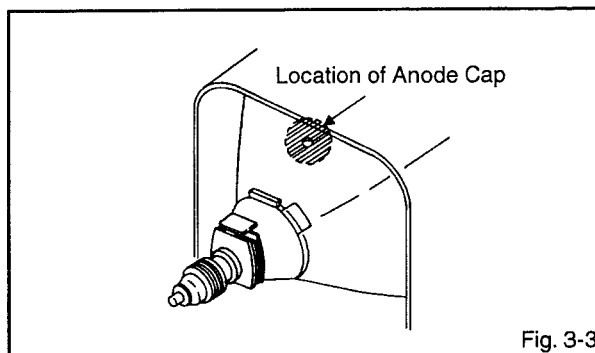


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 3-4.)

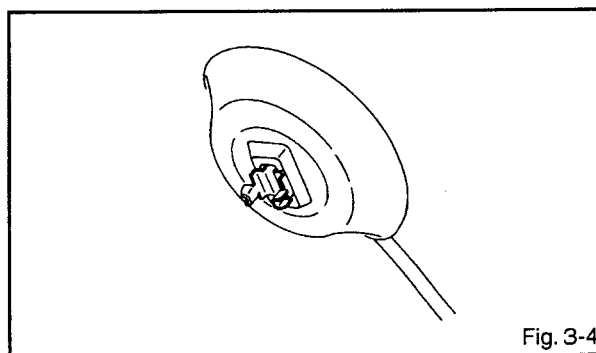


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 3-5.

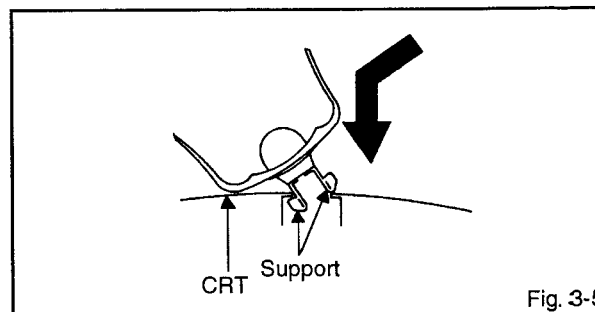


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

| INI | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 | +9 | +A | +B | +C | +D | +E | +F |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 00 | -- | 00 | 00 | 00 | 00 | 59 | 94 | 41 | 01 | 41 | 14 | 8D | 0B | 07 | 0C | FF |
| 10 | 00 | 00 | 08 | 2D | 03 | 00 | 00 | 7E | 46 | 10 | 34 | 08 | 00 | 44 | A3 | 21 |
| 20 | C7 | 2A | 9F | 20 | D6 | 2E | 95 | 08 | 0A | 06 | 00 | 20 | 00 | E2 | 18 | 18 |
| 30 | 00 | 50 | 50 | 50 | 00 | 00 | 00 | 03 | 2D | 2D | 2D | 2D | 2D | 2D | 2D | 2D |
| 40 | 7F | 75 | 6B | 66 | 63 | 60 | 5D | 5A | 57 | 54 | 51 | 4E | 4B | 48 | 45 | 42 |
| 50 | 3F | 3D | 3B | 39 | 37 | 35 | 33 | 31 | 2F | 2D | 2B | 29 | 27 | 25 | 23 | 21 |
| 60 | 1F | 1E | 1D | 1C | 1B | 1A | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |
| 70 | 0F | 0E | 0D | 0C | 0B | 0A | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 03 | 02 | 02 |

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control.
ADDRESS and DATA should appear as FIG. 1.
3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Press ENTER will take you back to ADDRESS for further selected if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.
The unit will now have the correct DATA for the new MEMORY IC.

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 2 seconds.

| Set Key | Remocon Key | Operations |
|--------------|-------------|--|
| VOL. (-) MIN | 0 | Reset the user setting items (PICTURE, VOLUME, LANGUAGE and NICAM AUTO/OFF) to the initial state for delivery. |
| VOL. (-) MIN | 1 | Initialization of the factory. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours. |
| VOL. (-) MIN | 6 | POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC". |
| VOL. (-) MIN | 8 | Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing. |
| VOL. (-) MIN | 9 | Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment). |

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control.
3. After the confirmation of using hours, turn off the power.

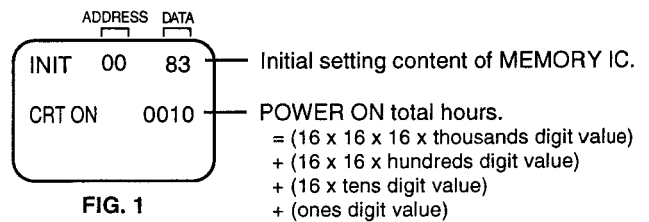


FIG. 1

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuit or replacing parts or PCB assemblies.

CAUTION

- * Use an isolation transformer when performing any service on this chassis.
 - * Before removing the anode cap, discharge electricity because it contains high voltage.
 - * When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in this original position.
- Inferior silicon grease can damage IC's and transistors.
- * When you exchange IC and Transistor for a heat sink, apply the silicon grease (YG6260M) on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Pattern Generator

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 2 seconds to appear the adjustment mode on the screen as show in FIG. 1-1.

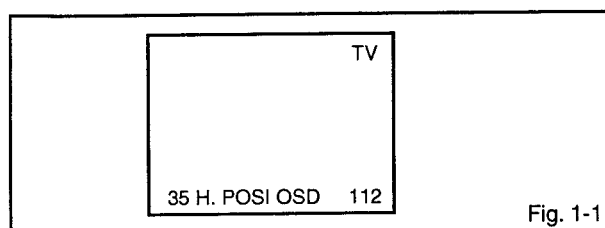


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options show in Fig. 1-2.
3. Press the MENU button on the remote control to end the adjustments.

| NO. | FUNCTION | NO. | FUNCTION |
|-----|-------------|-----|-------------|
| 00 | CUT OFF | 20 | TINT |
| 01 | RF AGC | 21 | SHARP |
| 02 | AGC GAIN | 22 | CONT CENT |
| 03 | R DRIVE | 23 | CONT MAX |
| 04 | R CUT OFF | 24 | CONT MIN |
| 05 | G DRIVE | 25 | COLOR CENT |
| 06 | G CUT OFF | 26 | COLOR MAX |
| 07 | B DRIVE | 27 | COLOR MIN |
| 08 | H POSI 50 | 28 | M R CUT OFF |
| 09 | V POSI 50 | 29 | M G CUT OFF |
| 10 | V POSI 60 | 30 | M B CUT OFF |
| 11 | V SIZE 50 | 31 | CVBS OUT |
| 12 | V SIZE 60 | 32 | APR THR |
| 13 | VCO COARSE | 33 | BELL |
| 14 | VCO FINE | 34 | BANDPASS |
| 15 | - | 35 | H POSI OSD |
| 16 | - | 36 | V POSI OSD |
| 17 | BRIGHT CENT | 37 | H POSI TXT |
| 18 | BRIGHT MAX | 38 | V POSI TXT |
| 19 | BRIGHT MIN | 39 | H POSI 60 |

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: AGC VOLTAGE

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the UHF (63dB).
3. Connect the digital voltmeter between the pin 5 and pin 1 (GND) of CP101.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (01) on the remote control to select "RF AGC".
5. Press the VOL. UP/DOWN button on the remote control until the voltmeter is $1.85 \pm 0.05V$.

2-2: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Activate the adjustment mode display of Fig. 1-1 and press the channel button (00) on the remote control to select "CUT OFF".
3. Adjust the Screen Volume until a dim raster is obtained.

2-3: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (04) on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjustment the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", "G CUT OFF" or "B DRIVE".
7. Using the VOL. UP/DOWN button on the remote control, adjustment the R DRIVE, G DRIVE, G CUT OFF or B DRIVE.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-4: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the Focus Volume until picture is distinct.

2-5: CONSTANT VOLTAGE

1. Place the set with Aging Test for more than 15 minutes.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to TP501.
4. Set condition is AV MODE without signal.
5. Adjust the VR501 until the digital voltmeter is $130 \pm 1V$.

ELECTRICAL ADJUSTMENTS

2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (08) on the remote control to select "H POSI(50)".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.
5. Receive the monoscope pattern of NTSC.
6. Using the remote control, set the brightness and contrast to normal position.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (39) on the remote control to select "H POSI(60)".
8. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: VERTICAL LINEARITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR420** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-8: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (11) on the remote control to select "V SIZE(50)".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes $8 \pm 3\%$.
5. Receive the monoscope pattern of NTSC.
6. Using the remote control, set the brightness and contrast to normal position.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (12) on the remote control to select "V SIZE(60)".
8. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes $8 \pm 3\%$.

2-9: HORIZONTAL POSITION OSD

1. Receive the monoscope pattern.
2. Activate the adjustment mode display of **Fig. 1-1**. Press the VOL. UP/DOWN button on the remote control
3. until then difference of A and B becomes minimum. (Refer to **Fig. 2-1**)

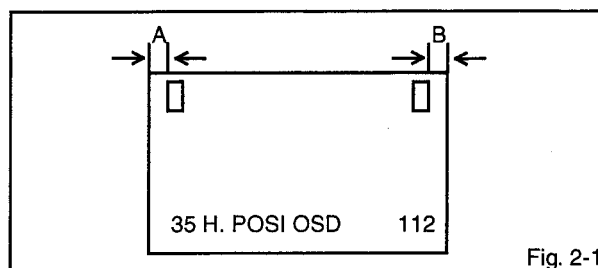


Fig. 2-1

2-10: BRIGHT CENT

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the monoscope Pattern. (RF Input)
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (17) on the remote control to select "BRIGHT CENT".
5. Press the VOL. UP/DOWN button on the remote control until the white 25% is starting to be visible.
6. Receive the monoscope Pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 3~5.

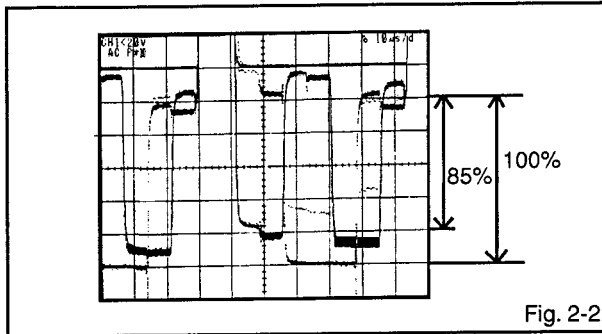
2-11: CONT CENT

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (22) on the remote control to select "CONT CENT".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "40".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1, 2.

2-12: COLOR CENT

1. Receive the monoscope Pattern. (RF Input)
2. Connect the oscilloscope to **TP022**.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (25) on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 5 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $85 \pm 10\%$ for the white level. (Refer to **Fig. 2-2**)
7. Receive the monoscope Pattern. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

ELECTRICAL ADJUSTMENTS



2-13: VCO COARSE/VCO FINE

1. Place the set with Aging Test for more than 10 minutes.
2. Connect the oscillator (38.9MHz) to TP001.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (13) on the remote control to select "VCO COARSE".
4. Press the VOL. UP/DOWN button on the remote control until the "OK" appear on the screen. If the "OK" is not displayed, select the "-" side on the changed from "+" to "-".
5. Press the CH UP button once to set to "VCO FINE" mode.
6. Press the VOL. UP/DOWN button on the remote control to select the 4 step down point from the upper limit on the "OK".
(Example: In sace of the "OK" point 30~41, select 37.)

2-14: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (09) on the remote control to select "V POSI(50)".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.
5. Receive the monoscope pattern of NTSC.
6. Using the remote control, set the brightness and contrast to normal position.
7. Activate the adjustment mode display of Fig. 1-1 and press the channel button (10) on the remote control to select "V POSI(60)".
8. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-15: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

| NO. | FUNCTION | RF | AV |
|-----|------------|-----|-----|
| 02 | AGC GAIN | 00 | 00 |
| 08 | BRIGHT MAX | 30 | 30 |
| 19 | BRIGHT MIN | 00 | 00 |
| 20 | TINT | 32 | 32 |
| 21 | SHARP | 10 | 10 |
| 23 | CONT MAX | 50 | 50 |
| 24 | CONT MIN | 01 | 01 |
| 26 | COLOR MAX | 45 | 45 |
| 27 | COLOR MIN | 14 | 14 |
| 31 | CVBS OUT | 08 | 08 |
| 32 | APR THR | 04 | 04 |
| 33 | BELL | 10 | 10 |
| 34 | BANDPASS | 06 | 06 |
| 36 | V POSI OSD | 50 | 50 |
| 37 | H POSI TXT | 115 | 115 |
| 38 | V POSI TXT | 60 | 60 |

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. (Refer to Fig. 3-1)
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

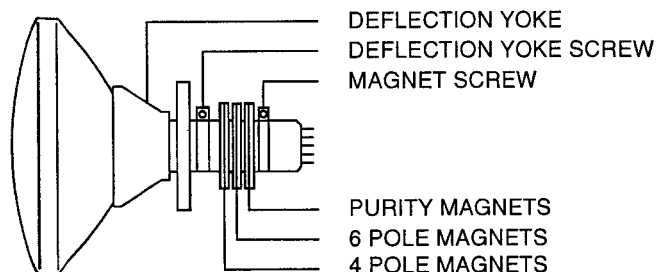


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

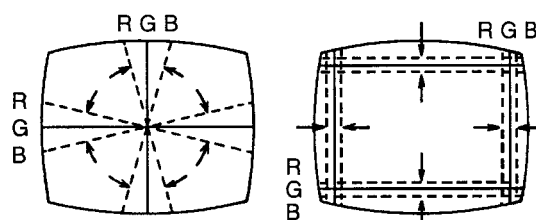
1. Receive the crosshatch pattern from color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

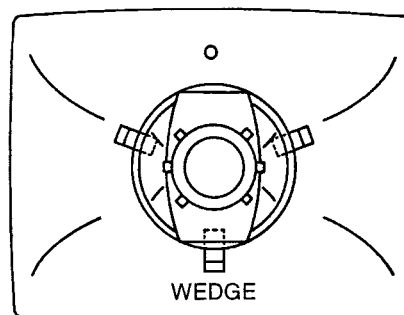
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. (Refer to Fig. 3-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. (Refer to Fig. 3-2-b)



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

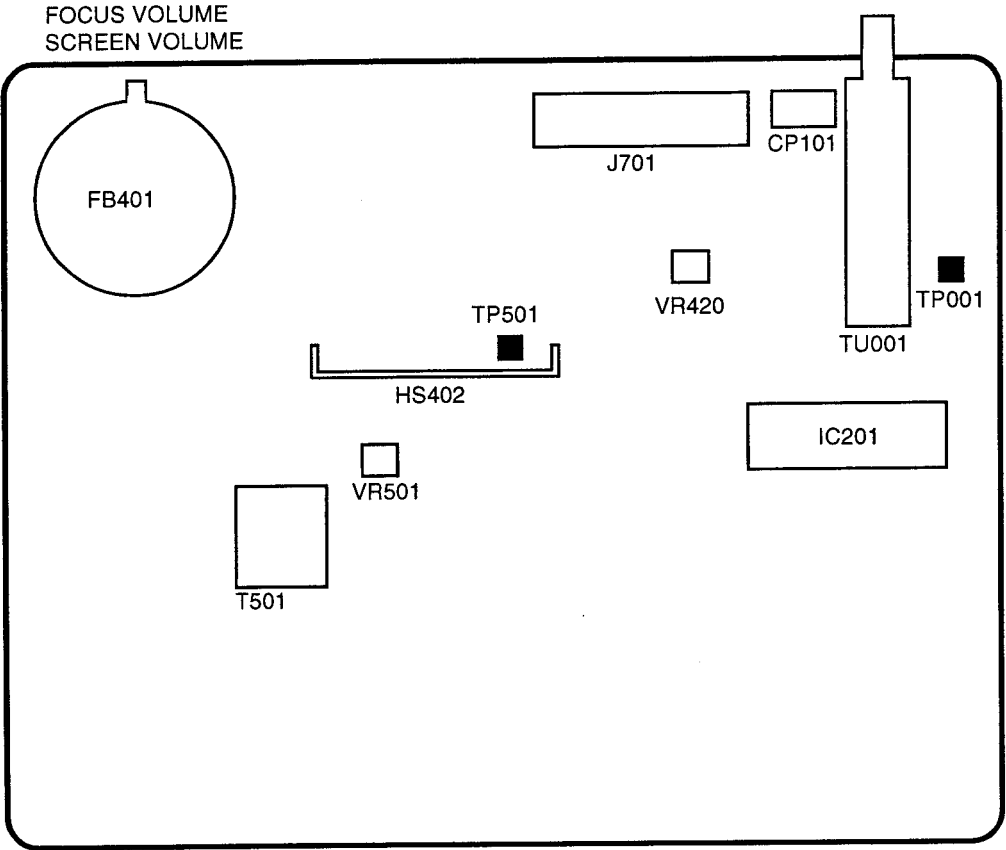
Fig. 3-2-a



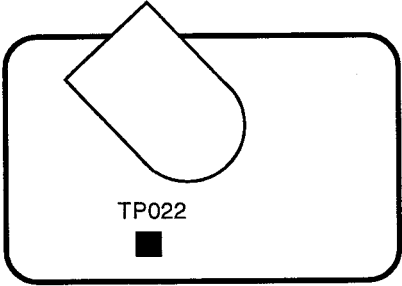
WEDGE POSITION

Fig. 3-2-b

MAJOR COMPONENTS LOCATION GUIDE

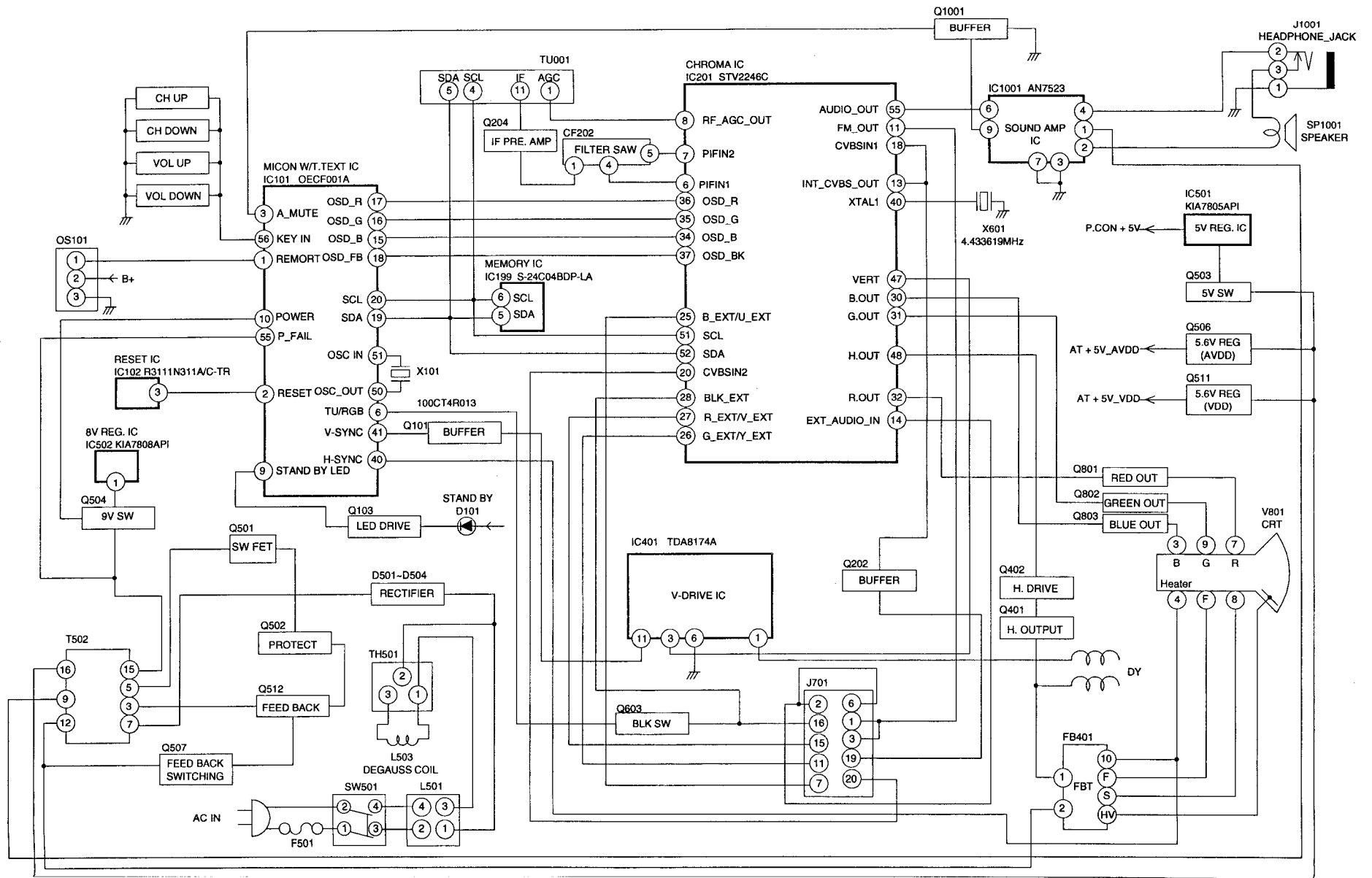


MAIN PCB

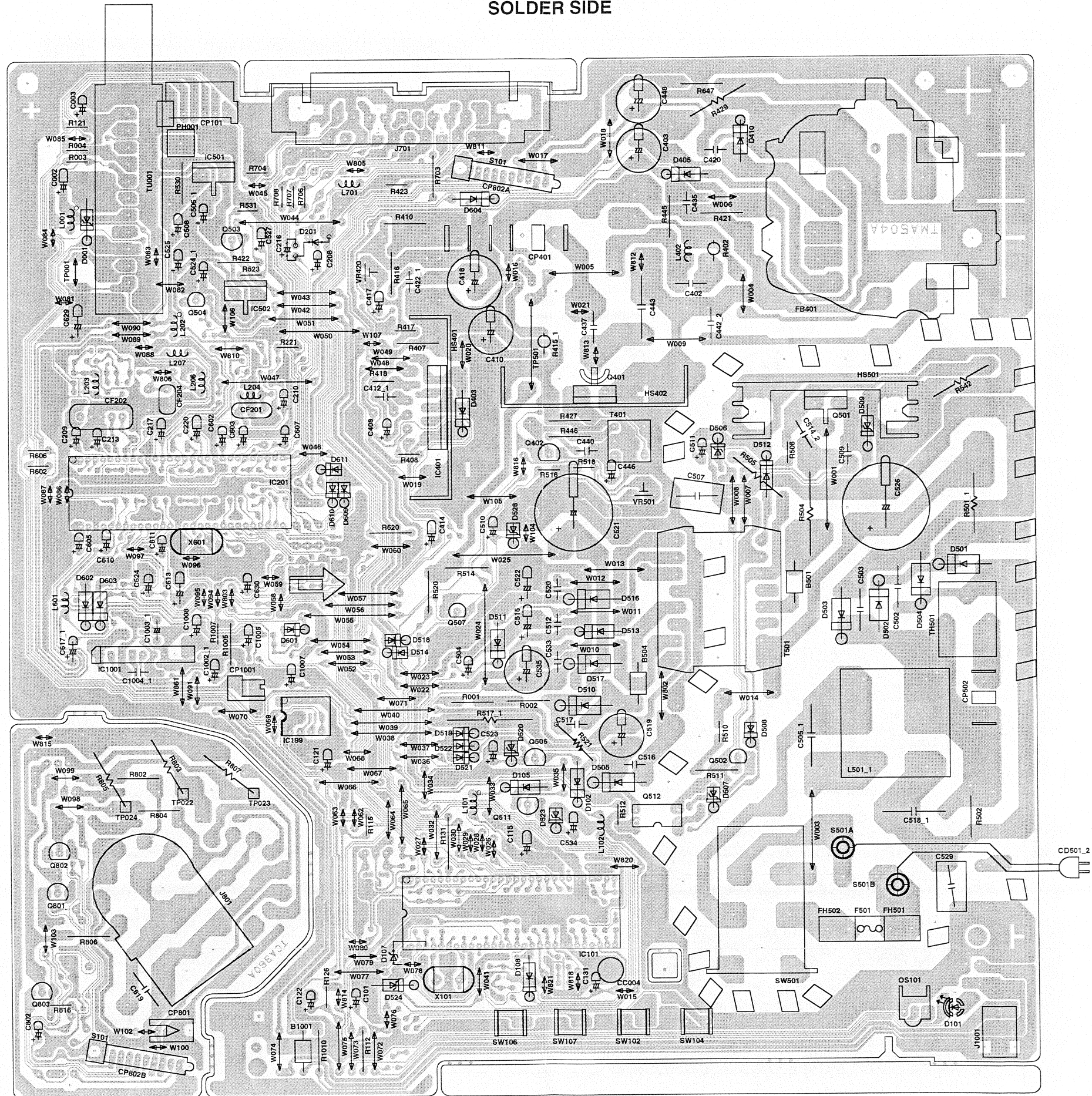


CRT PCB

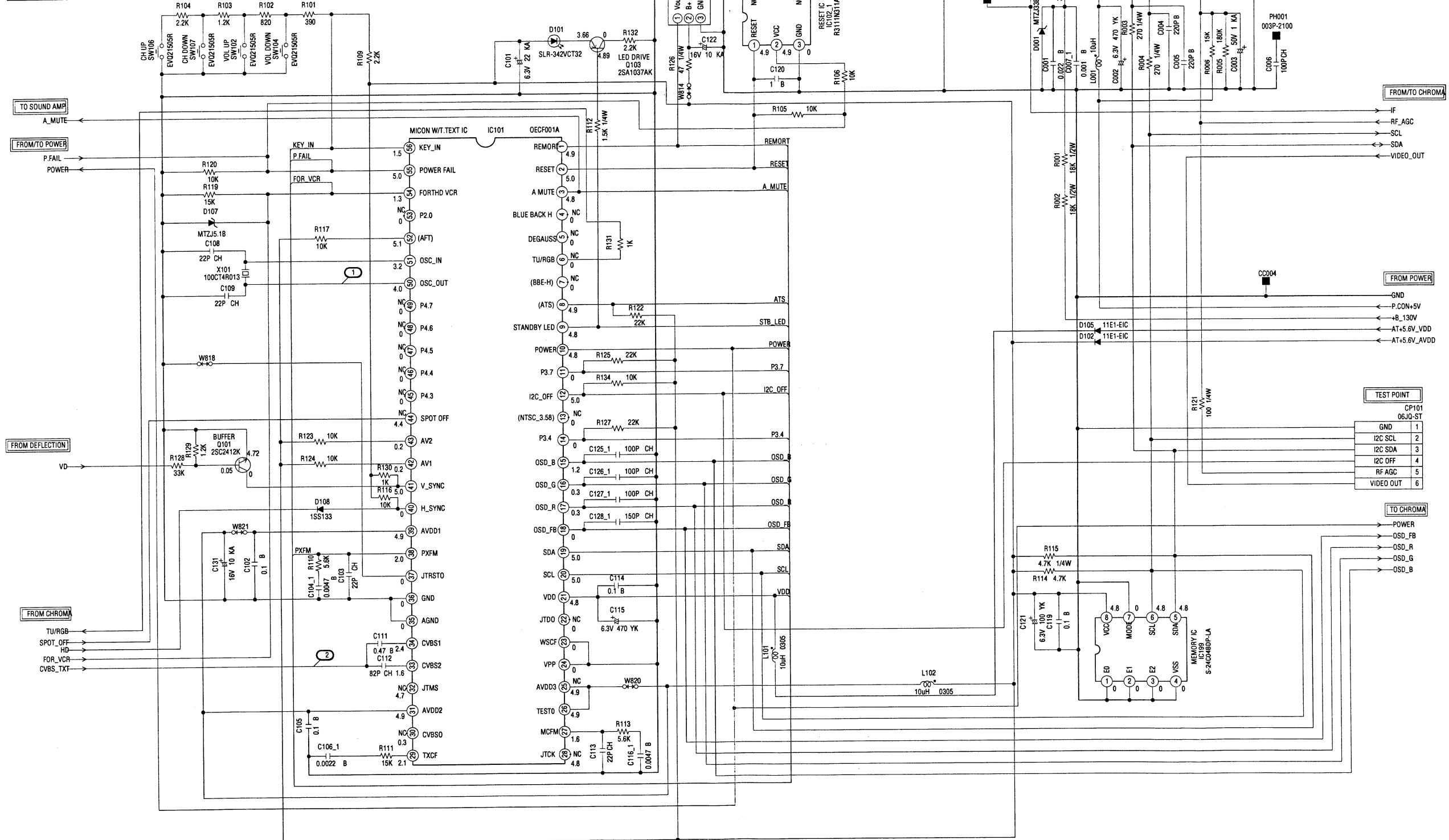
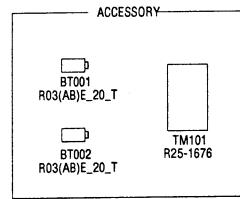
BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT (INSERTED PARTS)
SOLDER SIDE



MICON/T.TEXT/TUNER SCHEMATIC DIAGRAM (MAIN PCB)



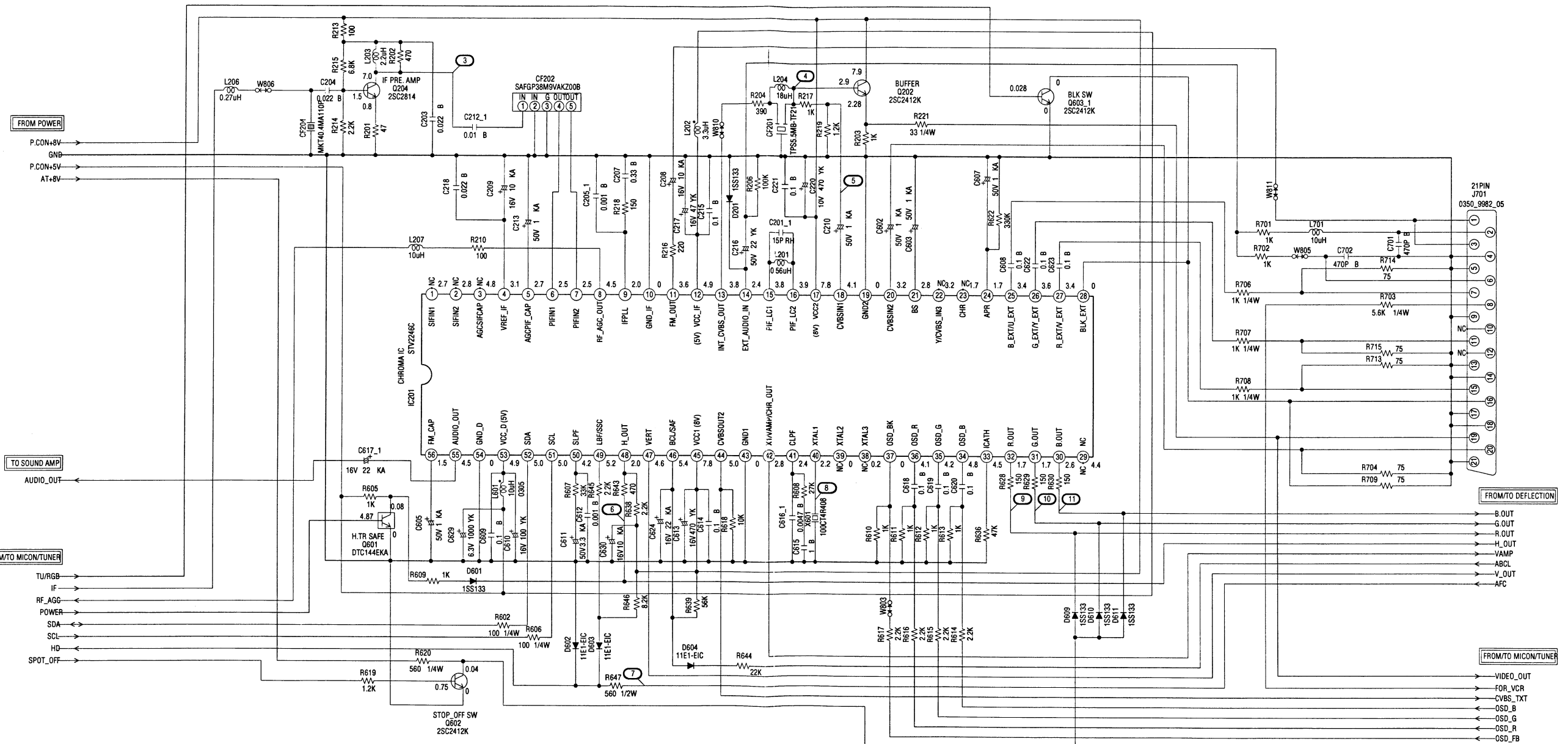
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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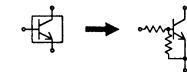
CHROMA/SIF/VIF SCHEMATIC DIAGRAM (MAIN PCB)



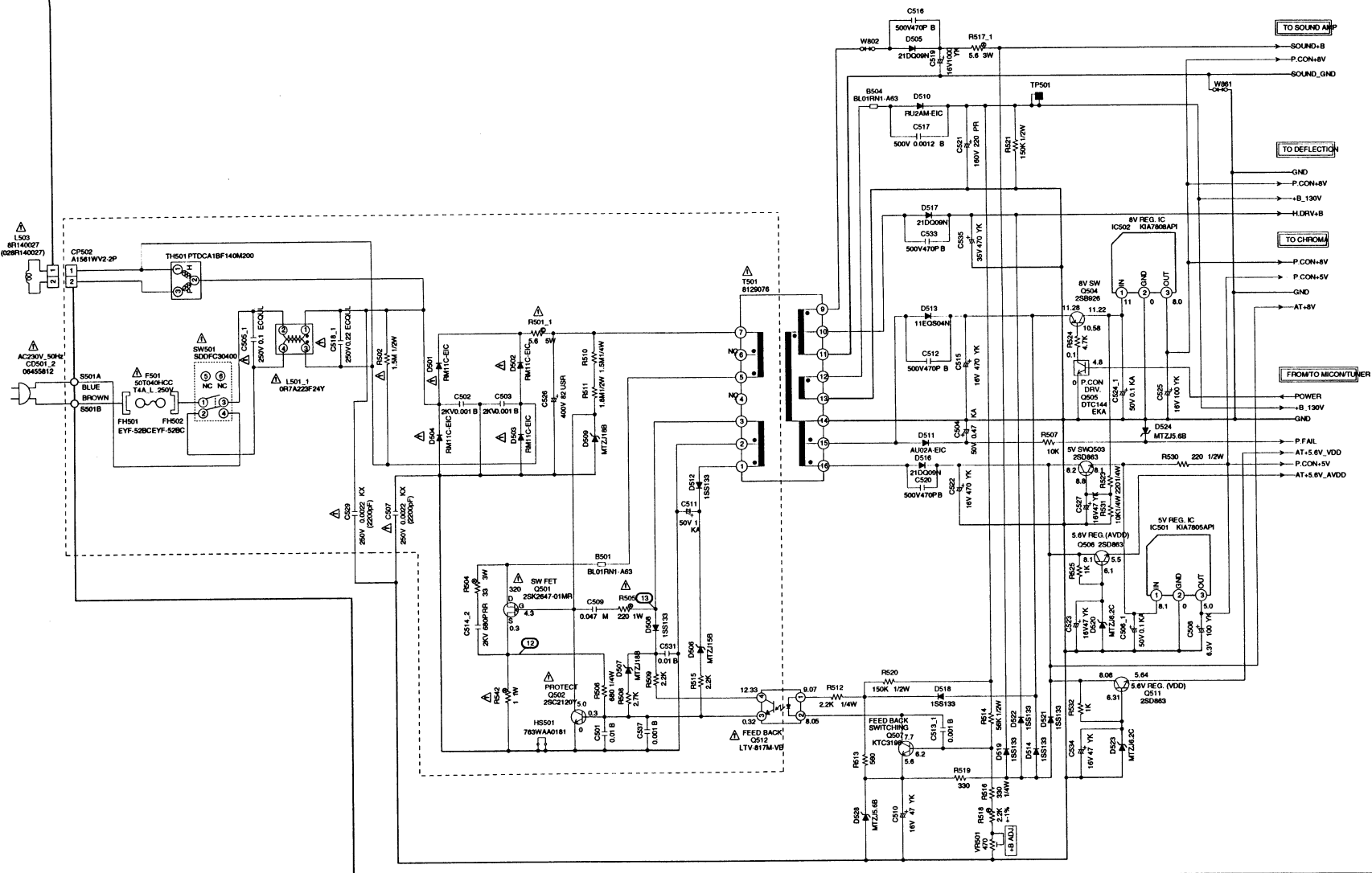
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

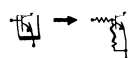
CAUTION: DIGITAL TRANSISTOR

PCB010
TMA504

POWER SCHEMATIC DIAGRAM (MAIN PCB)



CAUTION: DIGITAL TRANSISTOR



ATTENTION: PIÈCES RÉPARÉES PAR UN
REVENDEUR ANCIENNE VENTE SÉCURITÉ
DANS LA NOMENCLATURE DES PIÈCES

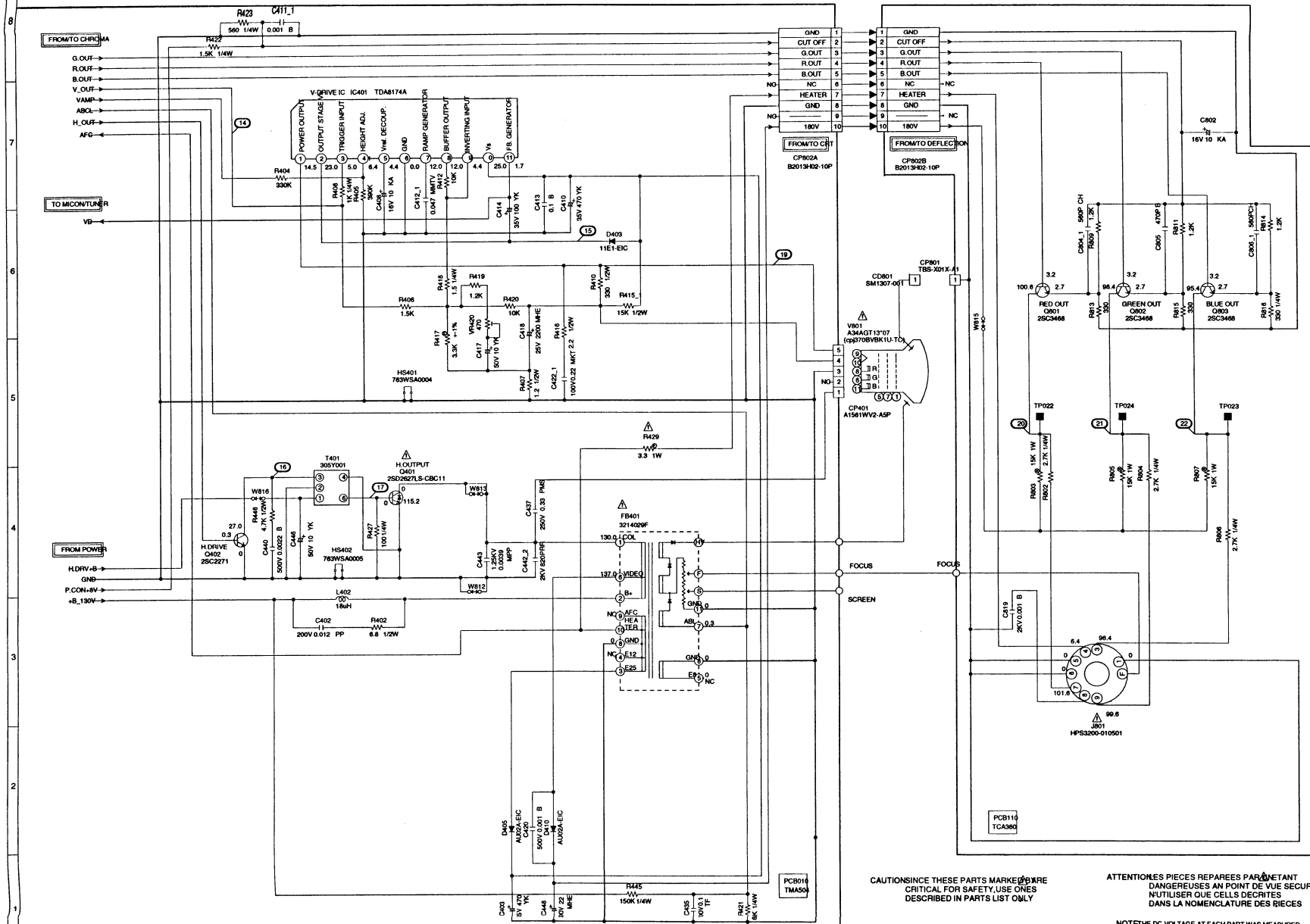
CAUTION: THESE PARTS MARKED
CRITICAL FOR SAFETY USE ONLY

NOTES: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

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OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

PCB010
TMA004

DEFLECTION/CRT SCHEMATIC DIAGRAM (PCB)



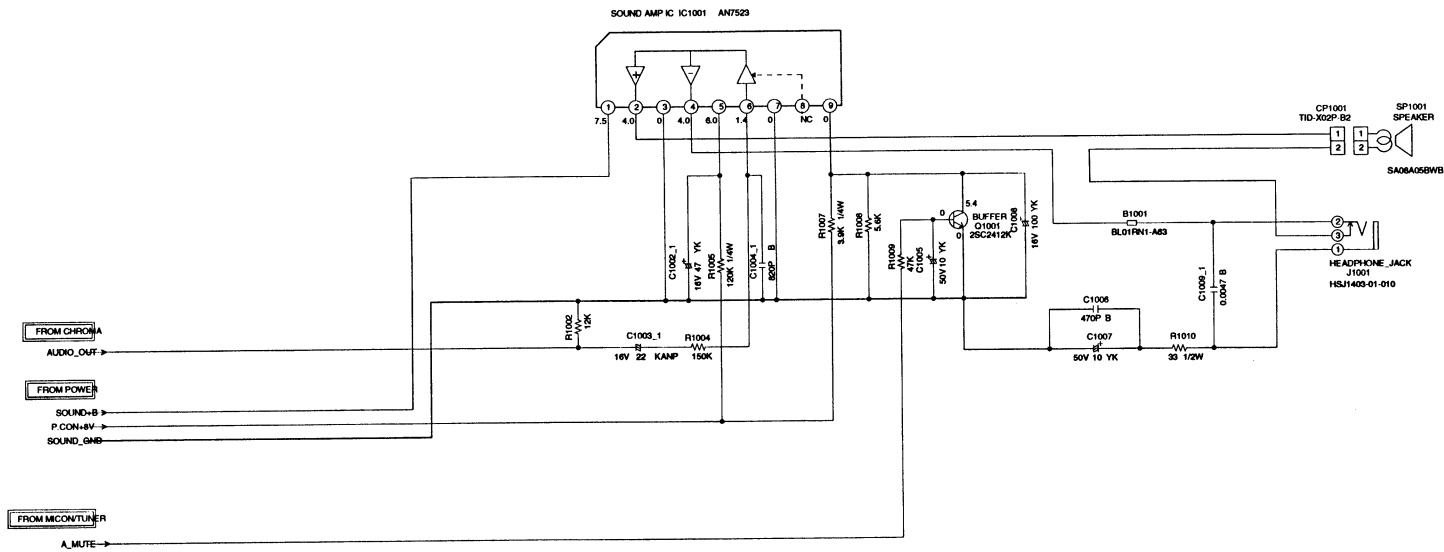
CAUTION: THESE PARTS MARKED WITH A TRIANGLE ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES REPARÉES PAR UN POINTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ. N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

SOUND AMP SCHEMATIC DIAGRAM (MAIN PCB)



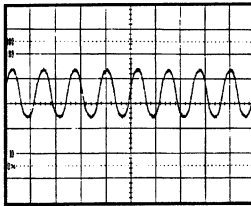
NOTETHIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

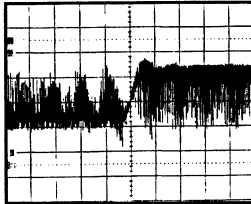
PCB010
TMA504

WAVEFORMS

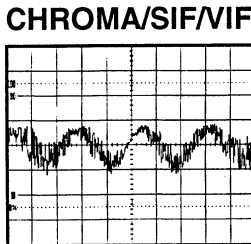
MICON/T.TEXT/TUNER



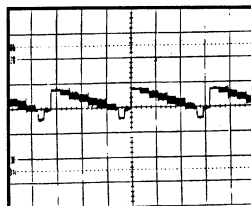
① 5V. 200ns/div



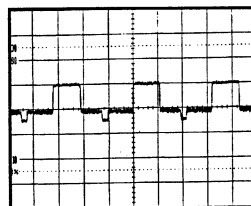
② 5V. 200ns/div



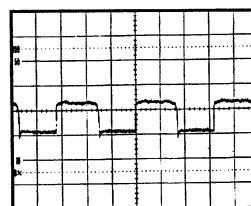
③ 10V 10ns/div



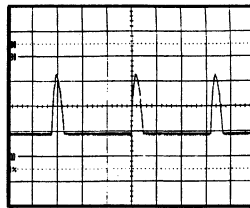
④ 10V. 20μs/div



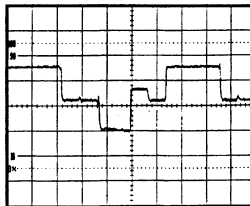
⑤ 5V. 20μs/div



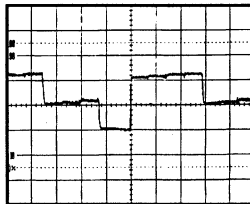
⑥ 5V. 20μs/div



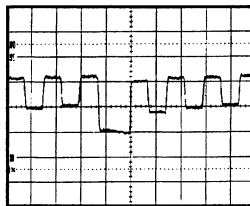
⑦ 100V 20μs/div



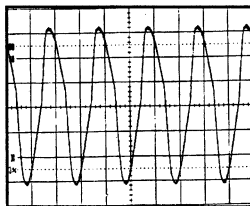
⑨ 10V 10μs/div



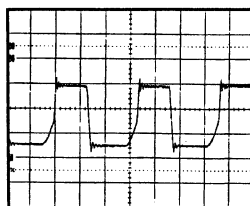
⑩ 10V 10μs/div



⑪ 10V 10μs/div

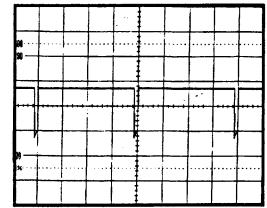


⑫ 500V 10ms/div

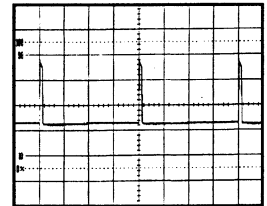


⑬ 100V 5μs/div

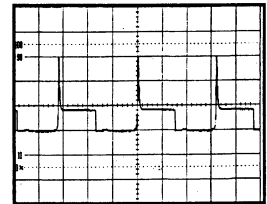
DEFLECTION/CRT



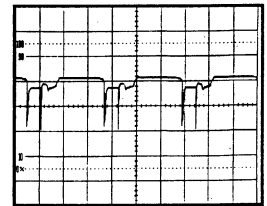
⑭ 20V 5ms/div



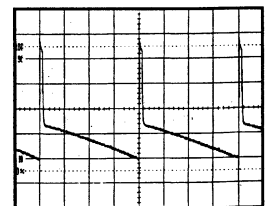
⑮ 100V 5ms/div



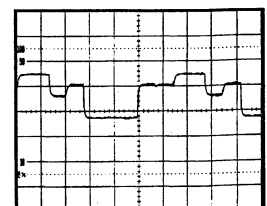
⑯ 500V 20μs/div



⑰ 50V 20μs/div



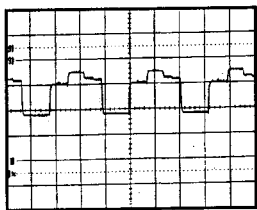
⑲ 100V 5ms/div



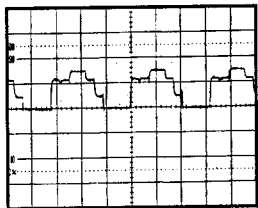
⑳ 500V 10μs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS



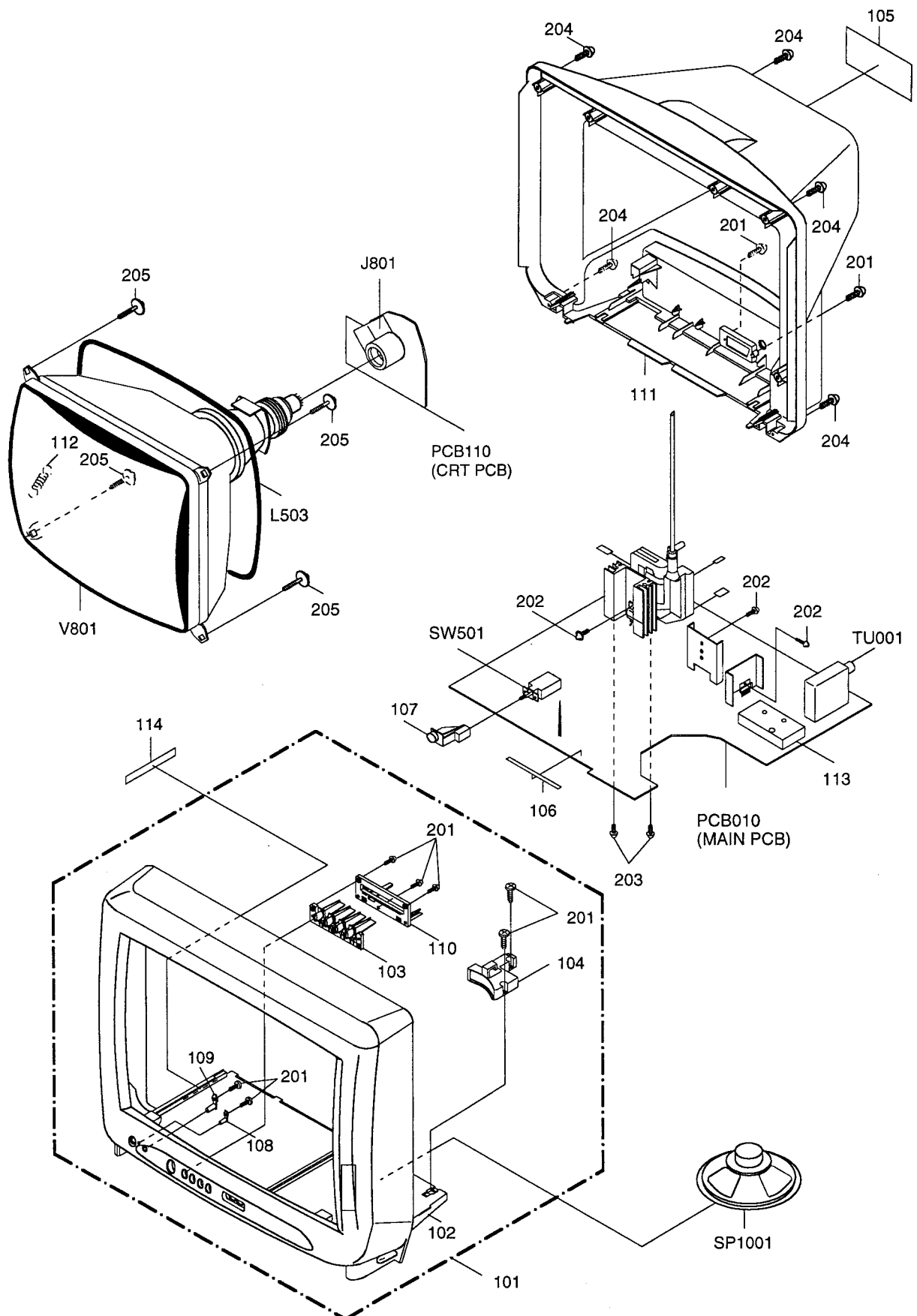
②1 500V 20μs/div



②2 50V 20μs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | | |
|----------|------------|----------------------|------------|------|
| 101 | A3K312M720 | CABINET,FRONT ASSY | | |
| 102 | 701WPJB534 | CABINET,FRONT | | |
| 103 | 735WPBA349 | BUTTON,FRAME | | |
| 104 | 761WPA0163 | HOLDER,PCB | | |
| 105 | 722202A572 | SHEET,RATING | | |
| 106 | 800WQ00044 | FELT SHEET | | |
| 107 | 735WPBA351 | BUTTON,POWER | | |
| 108 | 713WPAA055 | GLASS,LED | | |
| 109 | 713WPAA054 | GUIDE,REMOCON | | |
| 110 | 735WPAA416 | BUTTON,HOLDER | | |
| 111 | 702UPA0118 | CABINET,BACK | | |
| 112 | 741WUA0020 | SPRING,EARTH | | |
| 113 | 752WSA0216 | SHIELD,CASE | | |
| 114 | 7220001017 | SHEET,PTB | | |
| 201 | 8110630A04 | SCREW,TAP TITE(P) | BRAZIER | 3x10 |
| 202 | 8109130804 | SCREW,TAP TITE(B) | WH7 | 3x8 |
| 203 | 8109630802 | SCREW,TAP TITE(B) | BRAZIER | 3x8 |
| 204 | 8117540A64 | SCREW,TAPPING(B0) | TRUSS | 4x16 |
| 205 | 8121F50B84 | SCREW,TAPPING(B0) | FAI20 FLAT | 5x28 |
| --- | 793UCDA888 | GIFT BOX | | |
| --- | A3K302N975 | INSTRUCTION BOOK KIT | | |
| --- | JB5X0100 | POLYBAG | | |
| --- | J3K30201 | INSTRUCTION BOOK | | |
| --- | 791MHA0001 | LAMIFILM BAG | | |
| --- | 792UHA0114 | PACKAGE,TOP | | |
| --- | 792UHA0115 | PACKAGE,BOTTOM | | |

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION |
|-------------------|------------|-------------------------------|---------------------------------|-------------|--|
| RESISTORS | | | ICS | | |
| R429 | R655813R3J | R,FUSE 3.3 OHM 1W | IC102 | IC7J0311A0 | IC R3111N311A/C-TR |
| △ R501 | R5Y2CD5R6J | R,CEMENT 5.6 OHM 5W | IC199 | A3K312N015 | IC S-24C04BDP-LA |
| △ R502 | R002T2155J | RC 1.5M OHM 1/2W | IC201 | I0WDE246C0 | IC STV2246C |
| R504 | R3X28B330J | R,METAL OXIDE 33 OHM 3W | IC401 | I0WTD81740 | IC TDA8174A |
| △ R505 | R3X181221J | R,METAL OXIDE 220 OHM 1W | IC501 | I1KA97805A | IC KIA7805API |
| R517 | R3X28B5R6J | R,METAL OXIDE 5.6 OHM 3W | IC502 | I1KA97808A | IC KIA7808API |
| R521 | R00202154J | RC 150K OHM 1/2W | IC1001 | I0FSP75230 | IC AN7523 |
| △ R542 | R3X181010J | R,METAL OXIDE 1 OHM 1W | TRANSISTORS | | |
| R803 | R3X181153J | R,METAL OXIDE 15K OHM 1W | Q101 | T8YJ2412K0 | TRANSISTOR SILICON 2SC2412KT146 R,S |
| R805 | R3X181153J | R,METAL OXIDE 15K OHM 1W | Q103 | T6YJ1037K0 | TRANSISTOR,SILICON 2SA1037AKT146R,S |
| R807 | R3X181153J | R,METAL OXIDE 15K OHM 1W | Q202 | T8YJ2412K0 | TRANSISTOR SILICON 2SC2412KT146 R,S |
| CAPACITORS | | | Q204 | T83A028140 | TRANSISTOR,SILICON 2SC2814(F3,F4)-T |
| C216 | E02L05220M | CE 22 UF 50V | △ Q401 | TD30026270 | TRANSISTOR SILICON 2SD2627LS-CBC11 |
| | E02LU5220M | CE 22 UF 50V | Q402 | TC3T022710 | TRANSISTOR,SILICON 2SC2271(D,E)-AE |
| C402 | P3N1F2123J | CPP 0.012 UF 200V | △ Q501 | T410K26470 | FET 2SK2647-01MR |
| C418 | E5EZ3222M | CE 2200 UF 25V | △ Q502 | TC5T021204 | TRANSISTOR,SILICON 2SC2120Y(TPE2) |
| C437 | P4J7F3334J | CMPP 0.33 UF 250V PMS | Q503 | TD3T008630 | TRANSISTOR,SILICON 2SD863(E,F)-AE |
| C442 | COPLRR7W2K | CC 820 PF 2KV RR | Q504 | TBWT009260 | TRANSISTOR,SILICON 2SB926(S,T)-AA |
| | CO3L0R7W2K | CC 820 PF 2KV R | Q505 | TNYJD05001 | COMPOUND TRANSISTOR DTC144EKAT146 |
| C443 | P4N8FJ392H | CMPP 0.0039UF 1.25KV | Q506 | TD3T008630 | TRANSISTOR,SILICON 2SD863(E,F)-AE |
| C448 | E5EZFC220M | CE 22 UF 200V | Q507 | TCATC31980 | TRANSISTOR,SILICON KTC3198-AT(Y,GR) |
| C502 | C0JBB0713K | CC 0.001 UF 2KV B | Q511 | TD3T008630 | TRANSISTOR,SILICON 2SD863(E,F)-AE |
| C503 | C0JBB0713K | CC 0.001 UF 2KV B | △ Q512 | 0002E00610 | PHOTO COUPLER LTV-817M-VB |
| △ C505 | P2122B104M | CMP 0.1 UF 250V ECQUL | Q601 | TNYJD05001 | COMPOUND TRANSISTOR DTC144EKAT146 |
| △ C507 | CB3C30MH3M | CC 0.0022UF 250V | Q602 | T8YJ2412K0 | TRANSISTOR SILICON 2SC2412KT146 R,S |
| C514 | COPLRR7U2K | CC 680 PF 2KV RR | Q603 | T8YJ2412K0 | TRANSISTOR SILICON 2SC2412KT146 R,S |
| | CO3L0R7U2K | CC 680 PF 2KV R | Q801 | TC3T034680 | TRANSISTOR,SILICON 2SC3468(D,E)-AE |
| △ C518 | P2122B224M | CMP 0.22 UF 250V ECQUL | Q802 | TC3T034680 | TRANSISTOR,SILICON 2SC3468(D,E)-AE |
| C521 | E53VFB221M | CE 220 UF 160V | Q803 | TC3T034680 | TRANSISTOR,SILICON 2SC3468(D,E)-AE |
| C526 | E52D0H820M | CE 82 UF 400V | Q1001 | T8YJ2412K0 | TRANSISTOR SILICON 2SC2412KT146 R,S |
| △ C529 | CB3C30MH3M | CC 0.0022UF 250V | COILS & TRANSFORMERS | | |
| C819 | C0JBB0713K | CC 0.001 UF 2KV B | L001 | 02167F100J | COIL 10 UH |
| DIODES | | | L101 | 02167F100J | COIL 10 UH |
| D001 | D97U03301B | DIODE,ZENER MTZJ33B T-77 | L102 | 02167F100J | COIL 10 UH |
| D101 | 0021721150 | LED SLR-342VCT32 | L201 | 0216S1R56J | COIL 0.56 UH |
| D102 | D2WT011E10 | DIODE SILICON 11E1-EIC | L202 | 0216733R3K | COIL 3.3 UH |
| D105 | D2WT011E10 | DIODE SILICON 11E1-EIC | L203 | 021LA62R2M | COIL 2.2 UH |
| D107 | D97U05R11B | DIODE,ZENER MTZJ5.1B T-77 | L204 | 021LA6180K | COIL 18 UH |
| D108 | D1VT001330 | DIODE,SILICON 1SS133T-77 | L206 | 021LA6R27M | COIL 0.27 UH |
| D201 | D1VT001330 | DIODE,SILICON 1SS133T-77 | L207 | 021LA6100J | COIL 10 UH |
| D403 | D2WT011E10 | DIODE SILICON 11E1-EIC | L402 | 021U6D180K | COIL 18 UH |
| D405 | D2WTAU02A0 | DIODE SILICON AU02A-EIC | △ L501 | 029T000094 | COIL,LINE FILTER 0R7A223F24Y |
| D410 | D2WTAU02A0 | DIODE SILICON AU02A-EIC | △ L503 | 028R140027 | COIL,DEGAUSS 8R140027 |
| △ D501 | D2WTRM11C0 | DIODE SILICON RM11C-EIC | L601 | 02167F100J | COIL 10 UH |
| △ D502 | D2WTRM11C0 | DIODE SILICON RM11C-EIC | L701 | 021LA6100K | COIL 10 UH |
| △ D503 | D2WTRM11C0 | DIODE SILICON RM11C-EIC | T401 | 03305Y0018 | TRANS,HORIZONTAL DRIVE 305Y001 |
| △ D504 | D2WTRM11C0 | DIODE SILICON RM11C-EIC | △ T501 | 0481290766 | TRANSFORMER,SWITCHING 8129076 |
| D505 | D28T21DQ9N | DIODE SCHOTTKY 21DQ09N-TA2B1 | JACKS | | |
| D506 | D97U01501B | DIODE,ZENER MTZJ15B T-77 | J701 | 063G100042 | SOCKET,21PIN 0350_9982_05 |
| D507 | D97U01801B | DIODE,ZENER MTZJ18B T-77 | △ J801 | 066X120014 | SOCKET,CATHODE RAY TUBE HPS3200-010501 |
| D508 | D1VT001330 | DIODE,SILICON 1SS133T-77 | J1001 | 0602121012 | JACK,RCA 3.5 HSJ1403-01-010 |
| D509 | D97U01801B | DIODE,ZENER MTZJ18B T-77 | SWITCHES | | |
| D510 | D2WXRU2A00 | DIODE SILICON RU2AM-EIC | SW102 | 0504101T34 | SWITCH,TACT EVQ21505R |
| D511 | D2WTAU02A0 | DIODE SILICON AU02A-EIC | SW104 | 0504101T34 | SWITCH,TACT EVQ21505R |
| D512 | D1VT001330 | DIODE,SILICON 1SS133T-77 | SW106 | 0504101T34 | SWITCH,TACT EVQ21505R |
| D513 | D28TQS04N0 | DIODE SCHOTTKY 11EQS04N-TA1B2 | SW107 | 0504101T34 | SWITCH,TACT EVQ21505R |
| D514 | D1VT001330 | DIODE,SILICON 1SS133T-77 | △ SW501 | 0530205002 | SWITCH PLUS SDDFC30400 |
| D516 | D28T21DQ9N | DIODE SCHOTTKY 21DQ09N-TA2B1 | VARIABLE RESISTORS | | |
| D517 | D28T21DQ9N | DIODE SCHOTTKY 21DQ09N-TA2B1 | VR420 | V1163Q2BTC | VOLUME,SEMI FIXED EVNCRYAA03B02 |
| D518 | D1VT001330 | DIODE,SILICON 1SS133T-77 | VR501 | V1163Q2BTC | VOLUME,SEMI FIXED EVNCRYAA03B02 |
| D519 | D1VT001330 | DIODE,SILICON 1SS133T-77 | P.C. BOARD ASSEMBLIES | | |
| D520 | D97U06R21C | DIODE,ZENER MTZJ6.2C T-77 | PCB010 | A3K312M010K | PCB ASS'Y TMA504A |
| D521 | D1VT001330 | DIODE,SILICON 1SS133T-77 | PCB110 | A3K302M110K | PCB ASS'Y TCA360A |
| D522 | D1VT001330 | DIODE,SILICON 1SS133T-77 | MISCELLANEOUS | | |
| D523 | D97U06R21C | DIODE,ZENER MTZJ6.2C T-77 | B501 | 024AT03655 | CORE BEADS BL01RN1-A63T |
| D524 | D97U05R61B | DIODE,ZENER MTZJ5.6B T-77 | B504 | 024AT03655 | CORE BEADS BL01RN1-A63T |
| D528 | D97U05R61B | DIODE,ZENER MTZJ5.6B T-77 | B1001 | 024AT03655 | CORE BEADS BL01RN1-A63T |
| D601 | D1VT001330 | DIODE,SILICON 1SS133T-77 | BT001 | 1412004008 | BATTERY,MANGAN R03(AB)E_20_1 |
| D602 | D2WT011E10 | DIODE SILICON 11E1-EIC | BT002 | 1412004008 | BATTERY,MANGAN R03(AB)E_20_1 |
| D603 | D2WT011E10 | DIODE SILICON 11E1-EIC | △ CD501 | 1206455812 | CORD AC BUSH 6455812 |
| D604 | D2WT011E10 | DIODE SILICON 11E1-EIC | CD801 | 1278140027 | BRAIDED WIRE SM1307-001 |
| D609 | D1VT001330 | DIODE,SILICON 1SS133T-77 | CF201 | 1012T5R503 | FILTER,CERAMIC TRAP TPS5.5MB-TF2 |
| D610 | D1VT001330 | DIODE,SILICON 1SS133T-77 | CF202 | 1022038R9E | FILTER,SAW SAFGP38M9VA<Z00B or |
| D611 | D1VT001330 | DIODE,SILICON 1SS133T-77 | | 1022T38R9E | FILTER,SAW SAF38.9MAK22Z |
| ICS | | | CF204 | 1012T04001 | FILTER,CERAMIC TRAP MKT40.4MA11P-TF |
| IC101 | I5PD0F001A | IC OECF001A | CP101 | 069X160379 | CONNECTOR PCB SIDE 06JQ-ST |

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | | |
|---------------|----------|-------------|---------------------|-----------------------|
| MISCELLANEOUS | | | | |
| | CP401 | 069S450089 | CONNECTOR PCB SIDE | A1561WV2-A5P |
| | CP502 | 069S420110 | CONNECTOR PCB SIDE | A1561WV2-2P |
| | CP801 | 069W010030 | CONNECTOR PCB SIDE | TBS-X01X-A1 |
| | CP1001 | 069W120019 | CONNECTOR PCB SIDE | TID-X02P-B2 |
| | CP802A | 067U010049 | WIRE HOLDER | B2013H02-10P |
| | CP802B | 067U010049 | WIRE HOLDER | B2013H02-10P |
| | EL002 | 124120301A | EYE LET | XRY20X30BD |
| Δ | F501 | 080NT04003 | FUSE | 50T040HCC |
| Δ | FB401 | 043214029F | TRANSFORMER FLYBACK | 3214029F |
| | FH501 | 06710T0006 | HOLDER,FUSE | EYF-52BC |
| | FH502 | 06710T0006 | HOLDER,FUSE | EYF-52BC |
| | OS101 | 077Q047001 | REMOTE RECEIVER | PIC-47143SY |
| | PH001 | 069W01001A | CONNECTOR PCB SIDE | 003P-2100 |
| | S101 | WHL6032038 | FLAT CABLE | AWG26 10C BLACK 320MM |
| | SP1001 | 070C732003 | SPEAKER | SA08A05BWB or |
| | | 070W132016 | SPEAKER | NS-300RW W/WIRE |
| | TH501 | DF20C140M0 | DEGAUSS ELEMENT | PTDCA1BF140M200 |
| | TM101 | 076R0DG180 | TRANSMITTER | R25-1676 |
| | TU001 | 0145511021 | TUNER,VHF-UHF | TUWOF4EG-771F2 |
| Δ | V801 | 098P140496 | CRT W/DY | A34AGT13x07 |
| | X101 | 100CT4R013 | CRYSTAL | HC-49/U-S |
| | X601 | 100CT4R408 | CRYSTAL | HC-49/U |

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

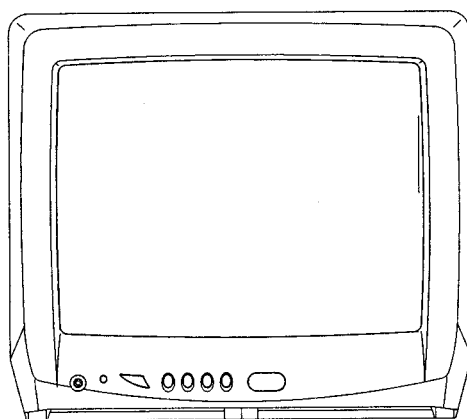
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|----------|----------|
| SPEC.NO. | M3K3-12M |
| O/R NO. | U1Z3501 |

ORION

TV-3787

SERVICE MANUAL

COLOR TELEVISION RECEIVER



**SUPPLEMENT
CHASSIS CODE A**

This SUPPLEMENT must be used together SERVICE MANUAL for TV-3786SI.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | TV-3786SI | | TV-3787 | |
|----------|------------|------------------------------|------------|------------------------------|
| | PART NO. | DESCRIPTION | PART NO. | DESCRIPTION |
| BT001 | 1412004008 | BATTERY,MANGAN R03(AB)E_20_T | 1412004013 | BATTERY,MANGAN R03(AB)2PXGPI |
| BT002 | 1412004008 | BATTERY,MANGAN R03(AB)E_20_T | 1412004013 | BATTERY,MANGAN R03(AB)2PXGPI |

MECHANICAL REPLACEMENT PARTS LIST

| REF. NO. | TV-3786SI | | TV-3787 | |
|----------|------------|----------------------|------------|----------------------|
| | PART NO. | DESCRIPTION | PART NO. | DESCRIPTION |
| 101 | A3K312M720 | CABINET,FRONT ASS'Y | A3K313M720 | CABINET,FRONT ASS'Y |
| 102 | 701WPJB534 | CABINET,FRONT | 701WPJB598 | CABINET,FRONT |
| 103 | 735WPBA349 | BUTTON,FRAME | 735WPAA429 | BUTTON,FRAME |
| 105 | 722202A572 | SHEET,RATING | 722202A585 | SHEET,RATING |
| 107 | 735WPBA351 | BUTTON,POWER | 735WPAA424 | BUTTON,POWER |
| 108 | 713WPAA055 | GLASS,LED | 713WPAA034 | GLASS,LED |
| 109 | 713WPAA054 | GUIDE,REMOCON | 713WPAA048 | GUIDE,REMOCON |
| 110 | 735WPAA416 | BUTTON,HOLDER | 735WPAA427 | BUTTON,BASE |
| 112 | 741WUA0020 | SPRING,EARTH | 741WUA0019 | SPRING,EARTH |
| --- | 793UCDA888 | GIFT BOX | 793UCDA924 | GIFT BOX |
| --- | A3K302N975 | INSTRUCTION BOOK KIT | A3K313N975 | INSTRUCTION BOOK KIT |
| --- | J3K30201 | INSTRUCTION BOOK | J3K31301 | INSTRUCTION BOOK |
| --- | 792UHA0114 | PACKAGE, TOP | 792UHAA021 | PACKAGE, TOP |
| --- | 792UHA0115 | PACKAGE, BOTTOM | 792UHAA022 | PACKAGE, BOTTOM |

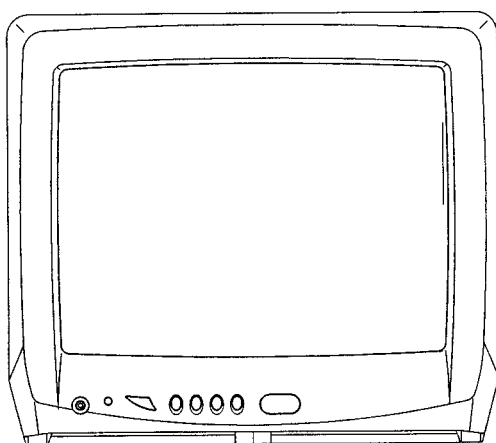
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| SPEC.NO. | M3K3-13M |
| O/R NO. | U223501 |

ORION

TV-3787SI

SERVICE MANUAL

COLOR TELEVISION RECEIVER



**SUPPLEMENT
CHASSIS CODE A**

This SUPPLEMENT must be used together SERVICE MANUAL for TV-3786SI.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

| REF. NO. | TV-3786SI | | TV-3787SI | |
|----------|------------|------------------------------|------------|------------------------------|
| | PART NO. | DESCRIPTION | PART NO. | DESCRIPTION |
| BT001 | 1412004008 | BATTERY,MANGAN R03(AB)E_20_T | 1412004013 | BATTERY,MANGAN R03(AB)2PXGPI |
| BT002 | 1412004008 | BATTERY,MANGAN R03(AB)E_20_T | 1412004013 | BATTERY,MANGAN R03(AB)2PXGPI |

MECHANICAL REPLACEMENT PARTS LIST

| REF. NO. | TV-3786SI | | TV-3787SI | |
|----------|------------|----------------------|------------|----------------------|
| | PART NO. | DESCRIPTION | PART NO. | DESCRIPTION |
| 101 | A3K312M720 | CABINET,FRONT ASS'Y | A3K314M720 | CABINET,FRONT ASS'Y |
| 102 | 701WPJB534 | CABINET,FRONT | 701WPJB599 | CABINET,FRONT |
| 103 | 735WPBA349 | BUTTON,FRAME | 735WPBA345 | BUTTON,FRAME |
| 105 | 722202A572 | SHEET,RATING | 722202A586 | SHEET,RATING |
| 107 | 735WPBA351 | BUTTON,POWER | 735WPBA366 | BUTTON,POWER |
| 108 | 713WPAA055 | GLASS,LED | 713WPAA034 | GLASS,LED |
| 109 | 713WPAA054 | GUIDE,REMOCON | 713WPAA048 | GUIDE,REMOCON |
| 110 | 735WPAA416 | BUTTON,HOLDER | 735WPAA427 | BUTTON,BASE |
| 111 | 702UPA0118 | CABINET,BACK | 702UPAA026 | CABINET,BACK |
| 112 | 741WUA0020 | SPRING,EARTH | 741WUA0019 | SPRING,EARTH |
| --- | 793UCDA888 | GIFT BOX | 793UCDA925 | GIFT BOX |
| --- | A3K302N975 | INSTRUCTION BOOK KIT | A3K313N975 | INSTRUCTION BOOK KIT |
| --- | J3K30201 | INSTRUCTION BOOK | J3K31301 | INSTRUCTION BOOK |
| --- | 792UHA0114 | PACKAGE, TOP | 792UHAA021 | PACKAGE, TOP |
| --- | 792UHA0115 | PACKAGE, BOTTOM | 792UHAA022 | PACKAGE, BOTTOM |

| | |
|----------|----------|
| SPEC.NO. | M3K3-14M |
| O/R NO. | U223503 |